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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,595	08/31/2001	Gerard Henri Martin	PET-1952	7456

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EXAMINER	
VANOY, TIMOTHY C	

ART UNIT	PAPER NUMBER
1754	

DATE MAILED: 03/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09-942,595	Applicant(s) MARTIN
	Examiner VANOY	Group Art Unit 1754

—The MAILING DATE of this communication appears on th cover sheet beneath the correspondence address—

P riod for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to ~~communication(s) filed on~~ THE PRELIMINARY AMENDMENT FILED Aug, 31 2001.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1 – 11 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1 – 11 is/are rejected.

☒ Claim(s) 9 is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☒ The drawing(s) filed on Aug 31, 2001 is/are objected to by the Examiner

☒ The specification is objected to by the Examiner.

☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)–(d)

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)–(d).

☒ All ☐ Some* ☐ None of the:

☒ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____.

☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____.

Attachment(s)

☒ Information Disclosure Statement(s), PTO–1449, Paper No(s). 3

☐ Interview Summary, PTO–413

☒ Notice of Reference(s) Cited, PTO–892

☐ Notice f Informal Pat nt Application, PTO–152

☐ Notice of Draftsperson's Patent Drawing Review, PTO–948

☐ Other _____

Office Acti n Summary

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

a) The Derwent WPI abstract for AT 399,214 set forth on the PTO-1449 date-stamped Oct. 12, 2001 (paper no.3) has not been considered because the abstract sets forth that there is no abstract.

Oath/Declaration

a) It is not clear if the applicants are claiming the benefit of the filing date of 60/186,300 set forth in the oath.

Drawings

a) Figure 1 should be designated by a legend such as --Prior Art-- because the disclosure set forth on pg. 4 ln. 32 sets forth that it is prior art. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

b) Fig. 5 is objected to as failing to comply with 37 CFR 1.84(p)(5) because it includes the reference sign 219, which is not mentioned in the description of fig. 5 set

forth on pg. 7 ln. 14 to pg. 8 ln. 3 in the applicants' specification. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

c) Fig. 5 is objected to as failing to comply with 37 CFR 1.84(p)(5) because it does not include the reference signs 201 and 210 mentioned in the description of fig. 5 set forth on pg. 7 lns. 17 and 32 (respectively). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

a) At the end of the abstract, "Figure 2 to be published." should be deleted.

b) The specification is objected to because it lacks a brief description of each of the figures, individually.

Claim Objections

a) In claim 9, it appears that "%" should be inserted after "50".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Pat. 5,216,966 in view of WO 97/43032.

The figure and the description of the figure set forth in col. 2 lns. 49 et seq. in U. S. Pat. 5,216,966 illustrates and describes the base process for removing sulfur dioxide from the flue gas emitted from the combustion of a sulfur-containing fuel (please see col. 1 lns. 8-11 and lns. 58-60), comprising:

a) burning a sulfur containing-fuel in a combustion chamber 1 to produce a flue gas at a temperature ranging from 800 to 2,000 °C, wherein the apparatus is also equipped with a heat exchange zone 10 (which extracts the heat from the flue gas) to produce a gas having a temperature;

b) passing the sulfur dioxide-contaminated flue gas through a space 61 for supplying the flue gas to desulfurization zone 6;

c) injecting sorbent 8 into the sulfur dioxide-contaminated flue gas;

d) passing the sulfur dioxide-contaminated exhaust gas into the desulfurization zone 6 (where the gas is scrubbed with injected sorbent to produce a desulfurized flue gas and a spent sorbent);

e) passing the flue gas and a portion of the entrained sorbent through heat exchange zone 10, where heat is extracted from the flue gas;

f) passing the flue gas and a portion of the entrained sorbent through a gas/solid separator 13, which separates the sorbent 132, 133 from the flue gas 14.

The difference between the applicants' claims and U. S. Pat. 5,216,966 is that the applicants' claims also call for the provision of an internal recycle of a sulfur oxides of sulfur adsorbent (please see claim 1 step (b), for example).

WO 97/43032 is directed to the same art of cleaning exhaust gas with injected sorbent, however the process of WO 97/43032 appears to use the same claimed internal recycle of the injected sorbent (please see fig. 6in WO 97/43032). The 3rd full paragraph on pg. 3 in WO 97/43032 discloses that one of the advantages of this internal recycle of sorbent (which is submitted to include the internal recycle illustrated in fig. 6

in WO 97/43032) is that there is a prolonged residence time of the sorbent in the scrubbing zone (which, evidently, results in a greater degree of gas purification).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made *to modify* the process described in U. S. Pat. 5,216,966 *so that* the desulfurization zone 6 has an internal recycle zone similar to that illustrated in fig. 6 in WO 97/43023, in the manner called for in the applicants' claims, because of the taught advantage of such an internal recycle zone to prolong the contact between the injected sorbent and the flue gas, as fairly set forth on pg. 3, paragraph 3 in WO 97/43032 (which, evidently, results in a greater degree of gas purification).

The following references, which are indicative of the state of the art, are made of record:

U. S. Pat. 4,679,511 disclosing a fluidized bed reactor having an integral solids separator;

U. S. Pat. 4,732,113 disclosing a particle separator, and

U. S. Pat. 4,934,281 disclosing a circulating fluidized bed reactor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 703-308-2540. The examiner can normally be reached on 8 hr. days.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-

872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Timothy Vanoy/tv
March 18, 2003

Timothy Vanoy
Patent Examiner
Art Unit 1754